

CLAIMS

1. A process for the proteolytic hydrolysis of a peptide or a polypeptide, said peptide or polypeptide comprising 4 to 40, preferably 5 to 35, amino acid residues and said peptide or polypeptide is not hydrolysable by subtilisin whereby said peptide or polypeptide is hydrolysed by a proline specific endo protease at a pH of 6.5 or lower, preferably 5.5 or lower and more preferably 5.0 or lower to hydrolyse said peptide or polypeptide.

2. A process for the proteolytic hydrolysis of a peptide or a polypeptide, said peptide or polypeptide comprising 4 to 40, preferably 5 to 35 amino acid residues and comprising the tripeptide motif Glu-Xxx-Pro, Gln-Xxx-Pro, Tyr-Pro-Phe or Tyr-Pro-Trp whereby said peptide or polypeptide is hydrolysed by a proline specific endo protease at a pH of 6.5 or lower, preferably 5.5 or lower and more preferably 5.0 or lower to hydrolyse said peptide or polypeptide.

3. A process for the proteolytic hydrolysis of a peptide or a polypeptide, said peptide or polypeptide comprising 4 to 40, preferably 5 to 35 amino acid residues, and whereby the amino acid residues of the peptide or polypeptide comprises for at least 30%, preferably at least 40%, proline and/or glutamine residues whereby said peptide or polypeptide is hydrolysed by a proline specific endo protease at a pH of 6.5 or lower, preferably 5.5 or lower and more preferably 5.0 or lower to hydrolyse said peptide or polypeptide with the proviso that the peptide or polypeptide comprises at least 10% of proline residues.

4. A process according to any one of claims 1 to 3 whereby the peptide or polypeptide comprises the tripeptide motif Glu-Xxx-Pro or Gln-Xxx-Pro and contains 9 or more amino acid residues.

5. A process according to claim 4 whereby said peptide or polypeptide is hydrolysed into a peptide containing 8 or less amino acid residues.

6. A process according claim 2 whereby the peptide or polypeptide comprises the motif Tyr-Pro-Phe or Tyr-Pro-Trp and whereby a peptide bond between Pro and Phe or Pro-Trp of the Tyr-Pro-Phe or Tyr-Pro-Trp motif is hydrolysed.

5 7. A process according to any one of the claims 1 to 6 wherein a proline specific endo protease derived from *Aspergillus* or belonging to the S28 family of serine proteases is used.

10 8. Use of a proline specific endo protease having a pH optimum below 6.5, preferably below 5.5, more preferably below 5.0 to hydrolyse a peptide or polypeptide comprising 4 to 40, preferably 5 to 35 amino acid residues that is not hydrolysable by subtilisin.

15 9. Use of a proline specific endoprotease to hydrolyse at pH of below 5.5, proline rich peptides which are brought in relation with psychiatric disorders including autism, schizophrenia, ADHD, bipolar mood disorder and depression and celiac disease linked disorders like autoimmune disorders, especially type 1 diabetes, dermatitis herpetiformis, autoimmune thyroiditis, collagen diseases, autoimmune alopecia and autoimmune hepatitis and IBS.

20 10. Use of a proline specific endoprotease to produce food, for example beer or bread which is devoid of celiac related epitopes, preferably gluten epitopes, more preferably wheat or barley epitopes.

25 11. Proline specific endoprotease having a pH optimum below 6.5, preferably below 5.5, more preferably below 5.0 for use as a medicament or for the use in manufacturing a medicament.

30 12. Proline specific endoprotease of claim 11 which is an *Aspergillus*, preferably an *Aspergillus niger* enzyme.

13. Use of proline specific endoprotease having a pH optimum below 6.5, preferably below 5.5, more preferably below 5.0 for the manufacture of a dietary supplement or a medicament for treatment or prevention of psychiatric disorders

including autism, schizophrenia, ADHD, bipolar mood disorder and depression and celiac disease linked disorders like autoimmune disorders, especially type 1 diabetes, dermatitis herpetiformis, autoimmune thyroiditis, collagen diseases, autoimmune alopecia and autoimmune hepatitis and IBS.

Best Available Copy

14. Use of a proline specific endoprotease having a pH optimum below 6.5, preferably below 5.5, more preferably below 5.0 for the manufacture of a dietary supplement or a medicament for individuals below the age of 25 years.

15. Use of proline specific endoprotease having a pH optimum below 6.5, preferably below 5.5, more preferably below 5.0 for a dietary supplement or a medicament for treatment or preventing of psychiatric disorders including autism, schizophrenia, ADHD, bipolar mood disorder and depression and celiac disease linked disorders like autoimmune disorders, especially type 1 diabetes, dermatitis herpetiformis, autoimmune thyroiditis, collagen diseases, autoimmune alopecia and autoimmune hepatitis and IBS.

16. Use of a proline specific endoprotease having a pH optimum below 6.5, preferably below 5.5, more preferably below 5.0 as dietary supplement or medicament for individuals below the age of 25 years.

17. Use of proline specific endoprotease to hydrolyse protein or peptides having more than 30 amino acid residues.

18. Use of proline specific endoprotease of claim 9 to 10 or 13 to 17, whereby the proline specific endoprotease is an *Aspergillus*, preferably an *Aspergillus niger* enzyme.

19. Use of a proline specific endoprotease having a pH optimum below 6.5, preferably below 5.5, more preferably below 5.0 as a dietary supplement, as a medicament, for the production of a dietary supplement, for the production of medicament or for the production of feed including pet food, intended for a non-human animal, preferably a mammal.